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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,934	12/29/2003	Chao-Yi Fang	03246-URS	7082

33804 7590 03/09/2005  
SUPREME PATENT SERVICES  
POST OFFICE BOX 2339  
SARATOGA, CA 95070

EXAMINER

MONDT, JOHANNES P

ART UNIT PAPER NUMBER

2826

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	<b>Application No.</b> 10/747,934	<b>Applicant(s)</b> FANG ET AL.	
	<b>Examiner</b> Johannes P. Mondt	<b>Art Unit</b> 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/29/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The examiner has considered the items listed in the Information Disclosure Statement. A signed copy of Form 1449 (substitute) is enclosed with this office action.

### ***Drawings***

1. ***Figures 1, 2, 16 and 17*** should be designated by a legend such as ***--Prior Art--*** because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The Specification is objected to for the following reasons: the "Detailed Description of the Preferred Embodiments" fails to provide numerals for especially those Drawings that described the embodiments of the invention, while those numerals included in Detailed Description of the Invention pertain to Drawings that described the prior art. In its present form Applicant has not at all provided said numerals: see, for instance the absence of any numerals referred to with regard to the cross-sectional views of Figures 13, 14, 15, 17, 29 and 30; while a discussion of Figures 16 and 17, being an illustration of the prior art, do not even belong in Detailed Description of the

Invention, but instead belong in Background of the Invention. Furthermore, the same deficiency is rampant in the Background of the Invention, in which no numerals for Figure 2 are included at all. Finally, the active layer has not been identified, neither by numeral, nor even in its position. Therefore, it is not even clear where the light originates. Applicant should provide a description of each claimed element including its numeral in the Drawings, but without introducing new matter.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. ***Claims 1-6*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, "the traveling path of the emitted light" (claim 1, line 5) is indefinite in the absence of any claimed active layer (nor is said active layer disclosed: see objection to the Specification).
4. ***Claims 7-16*** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, said high power nitride-based light-emitting diode (LED) both is claimed to have a sacrificial layer (line 1) and not to have a sacrificial layer (line 9) in the final structure, which renders claim 7 and all claims dependent thereon indefinite. Applicant is reminded that only the final structure is of patentable weight in the present device invention.

5. The term "high" in **claims 7-16** is a relative term which renders the claim indefinite. The term "high" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-3** are rejected under 35 U.S.C. 102(e) as being anticipated by Tadatomo et al (US 2004/0113166 A1). The following art rejection is provided to the best of examining possibility within the context of the noted indefiniteness (see above). Tadatomo et al teach a nitride based LED (title) comprising: a substrate 1; a light extraction layer 10a (see par. [0112] and Figure 1b) grown on the substrate; and a nitride semiconductor epitaxial layer 3/A/4 (see paragraphs [057], [060] and [0161]; Figure 1b), wherein the traveling path of the emitted light can be changed by the light extraction layer to avoid absorption by the epitaxial layer (see [0062]) and to emit from the diode (i.e., the light emitting diode) to (thereby inherently) improve the external quantum efficiency, and the external quantum efficiency is improved by matching the refraction index between the light extraction layer and the substrate (see [0113]).

*On claim 2:* the substrate is made of Al<sub>2</sub>O<sub>3</sub> (sapphire). ([062]).

*On claim 3:* the substrate alternatively is of SiC (cf. [0002]).

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claim 7** is rejected under 35 U.S.C. 102(b) as being anticipated by Erchak et al (6,831,302 B1). The following art rejection is provided to the best of examining possibility within the context of the noted indefiniteness (see above). As mentioned under the rejection under U.S.C. paragraph 112 “high” in “high power” renders the claim indefinite and will be left out of consideration. Furthermore, the sacrificial layer is not part of the final structure and will be left out of consideration. *Erchak et al teach* (Figure 1) a nitride-based LED (see title) comprising: a substrate 134 (col. 9, l. 40-43), a nitride semiconductor epitaxial layer on the substrate (132/130/128) (col. 9, l. 25-57), a substrate with high thermal conductivity 126 (col. 9, l. 40-57), and a binding layer (col. 22, l. 24-30) between the light-emitting structure of the nitride semiconductors and the substrate with high thermal conductivity.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM  
March 7, 2005

Patent Examiner:

A handwritten signature in black ink, appearing to read 'J. Mondt', with a stylized flourish at the end.

Johannes Mondt (Art Unit: 2826).